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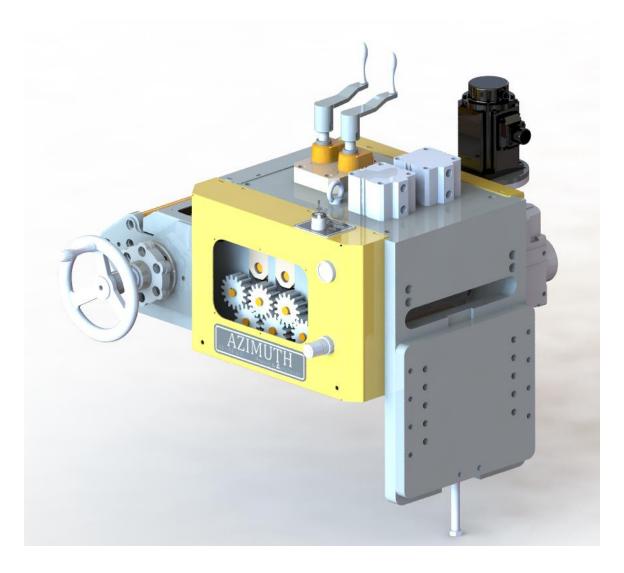
Instruction Mini Straightener feeder





AZIMUTH MACHINERY T. 450 632 8080 • <u>sales@azimuthpress.com</u> • www.azimuthpress.com 6040 Route 132, Ste-Catherine, Quebec, Canada, J5C 1B6

# **Azimuth Mini Straightener Feeder Instruction manual**





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# 1. Word of Caution

- ▲ This machine is rated for 208V/60Hz and 480V/60Hz in star configuration. Make sure to properly connect the machine.
- ▲ Before using the machine with material, make sure to perform a visual inspection and try to cycle it 5 times to verify that nothing has been damaged during transport (guarding system, etc.)
- ▲ Never operate this machine until you've read & understood that this machine is dangerous. Placing your hands or any part of your body in this machine could lead to serious injuries or death.
- ▲ Never operate this machine without the use of a guard or safety device that will always protect you from injuries.
- ▲ Never work on this machine unless the power is turned off and locked.

\*\*\* Never put your hands in the machine unless the power is turned off and locked out \*\*\*





The following general conditions must be followed.

- Check the machine and make sure that here is no damage when taking delivery of your machine. Please ask your dealer for replacement of shipping damage within 7 days starting the date of purchase, replacement requests are invalid after 7 days.
- Please check whether the accessories are missing while delivery of your machine. If there are any missing parts, please ask your dealer for the provision of the parts in question within 7 days from the date of purchase. Request you make after 7 days will not be considered.
- Make sure your machine is grounded and there are no voltage fluctuations on power supply.
- Failures caused by use of improper power connections are not covered by warranty of your machine. Repair of such failures will bring you financial burden.
- Do not try to attach external parts to each other's slots or their own slot the wrong way. Do all connections while the machine is off, do not try to attach or detach any parts while the machine is running.
- Do not interfere with software on the machine. Any modification to the software can be done only if Azimuth approves the request. Otherwise, it will cause your machine to be out of warranty.
- Make sure all connections to the machine are correctly made.
- Machine work surface must be flat, non-slip and solid.
- If our machine works with another machine than Azimuth ones, the manufacturer is not liable for any damage or work loss due to shock, moving around or vibrations in the event of overload of the other machine.
- Loading capacity of the machine must not be exceeded. Work overload will damage the machine and all components rotating.
- Make sure the machine is working as shown by the technical service during installation.
- Only use our machines for sheet materials, our machines are designed for uncoiling, feeding and cutting sheet metals. They are not suitable for round or rectangle profiled materials.





# 2. Installation

This section covers the mechanical set-up of the mini straightener feeder (MSF). Please make sure to fully understand these instructions before attempting to make mechanical adjustments to the machine. All mini straightener feeder products drawings and dimensions are presented in Appendix I. The instructions below will guide you through the machine installation

- Feeder attached to a press must be exactly parallel with the die. Measure the distance between the feeder mounting plate and die plate with a caliper. If it is not parallel, the sheet can become jammed;
- At every die change, make pass line and parallel adjustments using a caliper. Perform a test run before running in full-auto mode;
- Sensors provided with the feeder must be connected and mounted firmly before running the machine;
- Follow the pneumatic pilot release instructions for pressure adjustment and first sheet material testing;
- For longer feeding lengths, the press cannot continuously work on continuous hit mode. The servo feeder should send hit command to the press after completing feeding process;
- For press mounting, the feeder should be connected to the grounded system;
- Feerders can provide proper feeding process for dies with easy transition. In case of jamming, the servo motor may get damaged. Die protection sensors should be use to eliminate this risk.
- For straightening rollers adjustment, follow the straightener adjustment section.

## 2.1. Adjusting the Feeder Pass Line Height

Adjusting the feeder pass line height is slightly different for direct-mount and rack-mount feeders. Each of these configurations have their own instruction below.

## **Direct Mount**

When the feeder is directly mounted to the press's bolster plate using the provided mounting plate, use the height adjustment screw to make any change to the feeder pass line height. The sheet material must reach the die passe line completely flat. All mounting plate and adjustment screw bolts and nuts must be properly secured. Vibration may lead to loosening. Therefore, weekly inspection must be made.

Please note that the screw offers a limited pass line height adjustment. However, the provided mounting plate offers different mounting hole sets for higher or lower pass lines.

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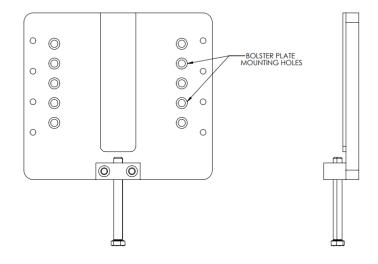
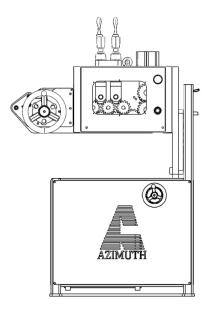


Figure 1 : Feeder mounting plate

### Rack Mount (Optional)

When the feeder is mounted on an Azimuth Feeder Rack, the pass line height can be adjusted by a wider range, using the built-in screw jack to raise or lower the feeder on the rack. Turning the handle will change the height of the pass-line. A height ruler is included on the feeder rack to approximate the current pass line height. The rack must be anchored properly to avoid risk of equipment movement.





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Figure 1 : Rack-mounted feeder

## 2.2. Pneumatic pilot release

The feeder is equipped with a pneumatic cylinder to release the pressure off the rollers. The air pressure supplied to the cylinder <u>must not exceed 80 psi</u>. For thinner material, <u>the minimum</u> <u>pressure is 20 psi</u>. Any higher pressure may cause damage to the feeder, bend the sheet material incorrectly or slide the sheet material to the sides. If your air supply pressure is higher, please restrict flow using the feeder's pressure regulator before engaging the feeder. Adequate pressure is reached when there is no slippage or deformation of the sheet material.

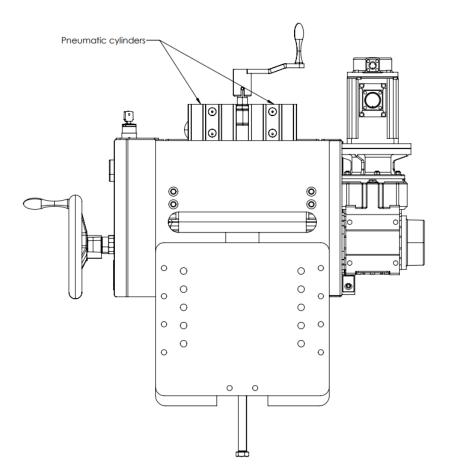


Figure 3 Roller pressure adjustment





Turning the pilot release switch to manual mode will override the signal from the HMI and will disengage the rollers' pressure, allowing you to change sheet metal coils and set-up new material. Once you are done setting up your feeder with your new coil, turn the switch back to AUTO to enable automatic pilot release. Automatic pilot release mode allows the HMI to send a signal to the pilot release cylinder to disengage the rollers' pressure between feed cycles when the press is punching the metal strip.



Figure 4 : Manual pilot release

## 2.3.Straightener adjustment

Adjusting the 5 straightener rollers is done by using the handle and indicator on top of the feeder. If straightening rollers apply too much pressure, it over bends the sheet material leading to the material jamming inside the die. Therefore, proper training with our team and the following steps must be followed.

- 1. A 0 value on the straightener indicator means that the rollers are touching each other. Open the rollers by rotating the handle clockwise to let the material in;
- 2. Clamp the material with the feeding rollers;
- 3. Rotate the handle counterclockwise until the straightener rollers are slightly in contact with the material. Gradually increase the pressure on the rollers by the same amount. Going step by step, feed the material out of the feeder with the manual controls and verify the material straightness. Make sure to obtain a perfect straightness before starting the feedline in full-auto mode.
- 4. In certain cases, kicking the material up might help with the material entry. To do so, increase the pressure a little bit more on the exit straightener roller than the entry one.



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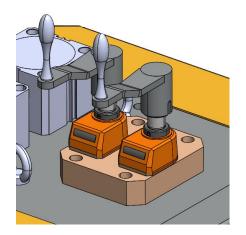


Figure 5 : Straightener adjustment

## 2.4.Cam rollers guides

Guiding rollers are used to center the material with the die. To function properly, all the machines in the feed line must be perfectly parallel and the material should be in the middle of the rollers. All parts functionalities are described below.

- 1. The handle is used to move the cam rollers closer or further from each other to get in contact with the material. The applied pressure should keep the material in the cam rollers without preventing them from rotating.
- 2. The adjustment stars close to the handle on the screw shaft is used to move the cam rollers backward or forward equivalently if the feeder is not perfectly centered with the die. The one close to the body of the feeder is used to lock the adjustment in place.

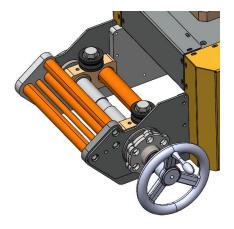


Figure 6 : Cam rollers guides





## 3. Maintenance

## 3.1. Machine routine maintenance needs

- The condition in the air system (dryer/lubricator), daily oil checks should be made, and the water must be emptied. Verify if there is a leak and the pressure is normal.
- Before working with the machine, operators must check all the working parts, should do the checks against the possibility of loosening and dismantling due to the vibrations occurring during feeding. Uncommon sounds are a good sign of malfunction.
- Periodically lubricate the bearings according to the maintenance chart. Most of them are sealed.
- Lubricate guidance rollers, screw shaft and pistons regularly with oil.
- Rollers must be cleaned before feeding the sheet.
- General maintenance and checks on the machine are mainly focused on abrasion and moving parts. For any replacement parts, contact the Azimuth team.

Parts	Daily	Weekly	Monthly	Biannual
Conditioning oil control	$\checkmark$			
Gears		$\checkmark$		
Lubrification pistons	$\checkmark$			
Lubrication of bearings		$\checkmark$		
Rollers cleaning	$\checkmark$			
General maintenance and checks of the machine				$\checkmark$

#### Table 1: Routine maintenance needs



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## **3.2.Machine troubleshooting instructions**

For any requests regarding troubleshooting or issues with the machine, contact the following authorized personal.

For mechanical requirements:

• 450-632-8080 x 204

For electrical or programming requirements:

• 450-632-8080 x 205

#### Table 6: Troubleshooting instructions

Fault phenomenon	Failure cause	Elimination methods
	Feeding roller have not	Increasing pressure
	enough pressure	
	Feeding length too long	Upper die strip material adverse puller
There is a fixed direction		phenomenon
feeding error	Feeding length not enough	Coil width and mold guide plate is appropriate? Or
		mold and feeder is straight line.
	Burrs or foreign bodies	Check the retaining plate and stripper for burrs or
		foreign bodies
	Feeder adjustment quantity	Leveling machine and feeder whether match or
	of materials	leveling machine and feeder of middle distance
		and material arc height and appropriate punch
Feed produced when		turnover number
unexpected errors	Transmission gap is too	Will tighten gauge belt pulley
	large between roller and	
	servo feeder	
	Coil related conditions	Material thickness, width and length is in
		accordance with the standards?
Coil serpent	Coil thickness corresponding	Adjust the pressure
	to the pressure	



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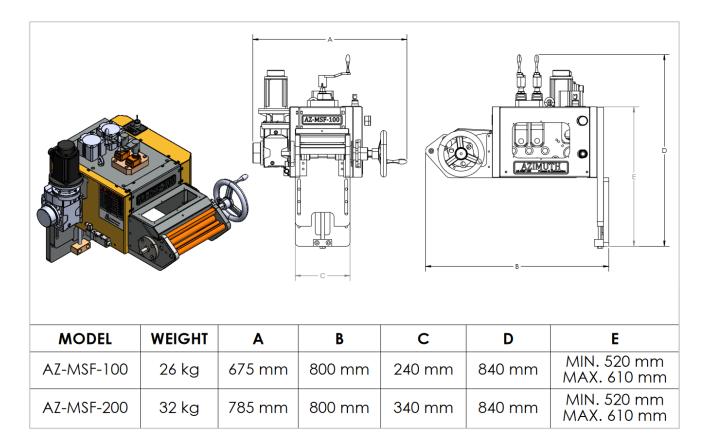
Coil width and keep-off	Adjust the keep-off wheel
wheel is not in proper place	
On both sides of the roller	Adjust on both sides of the roller to parallel
and materials between high	
and low is not the same	
Roller pressure is too large	The pressure drops
Feeding roller and the	Check whether mold guide groove and feeder in
material of sliding	line? The mold has waste that did not roll out?
phenomenon	Materials have burrs and the phenomenon of card
	mode.





## **APPENDIX**

## **APPENDIX I: MINI FEEDER STRAIGHTENER DIMENSIONS**

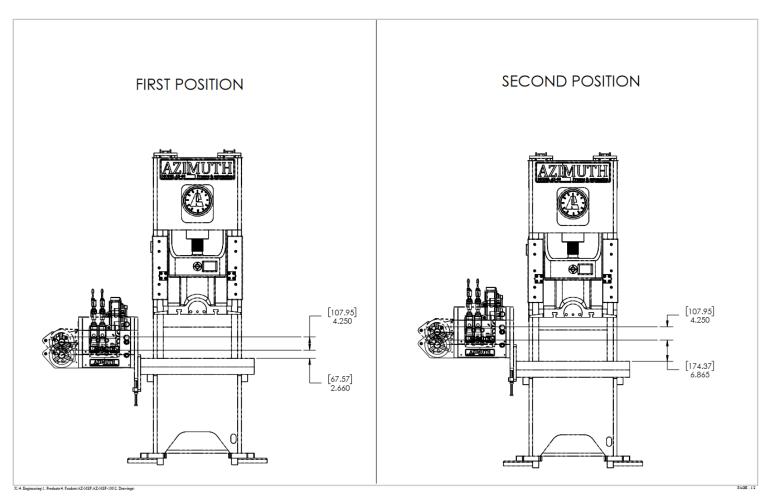


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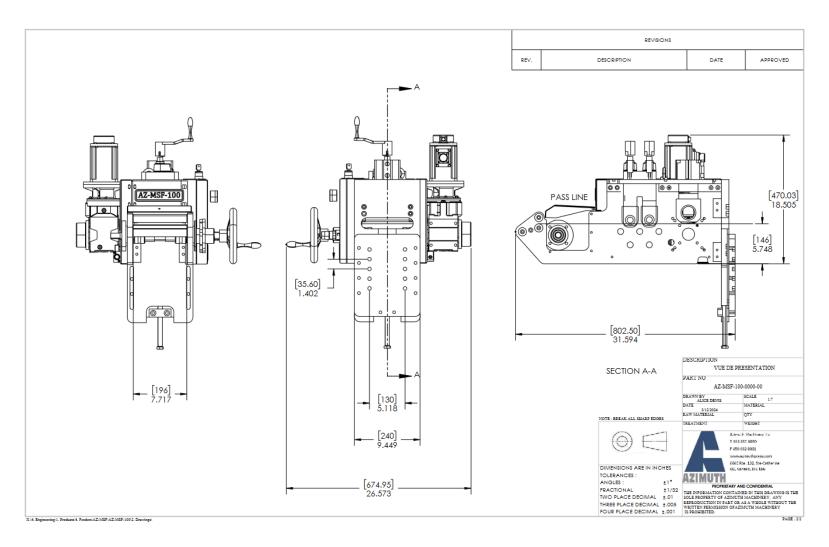
## **AZ-MSF-100 DIMENSIONS:**



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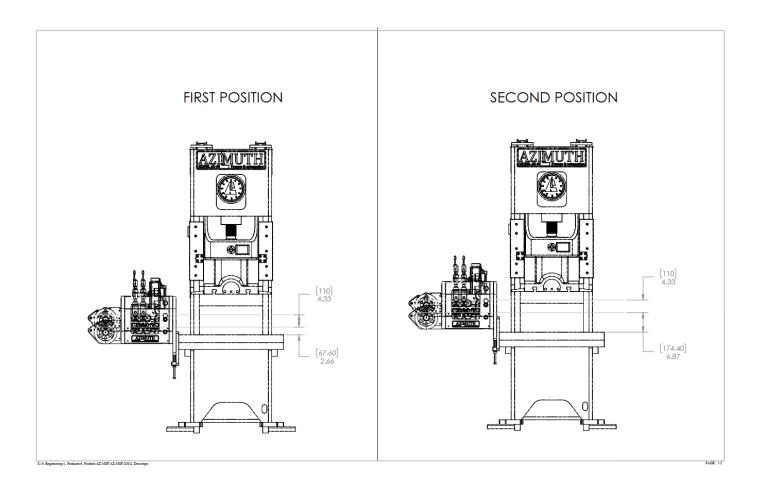


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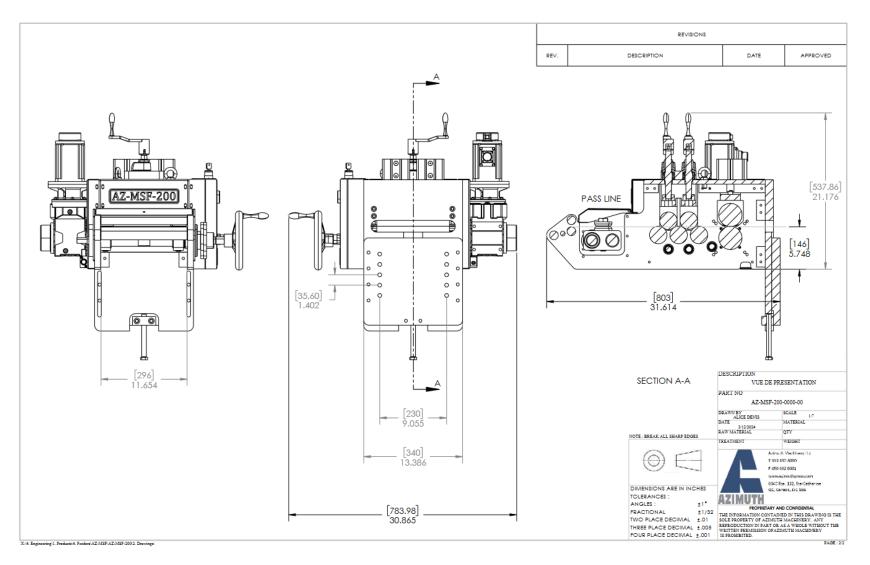


## **AZ-MSF-200 DIMENSIONS:**









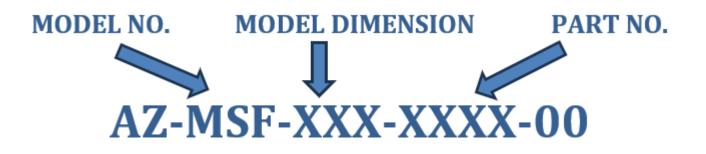
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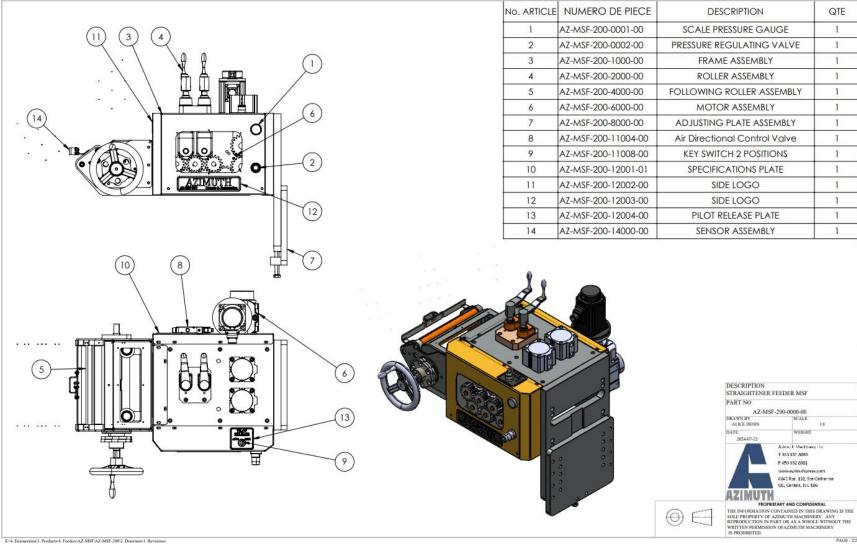
## **APPENDIX II: AZ-MSF SERIES DRAWINGS**

In this appendix, you will find the spare parts for all the AZ-MSF mini feeder straightener models. Note that the part numbers, when ordering, use the following template.





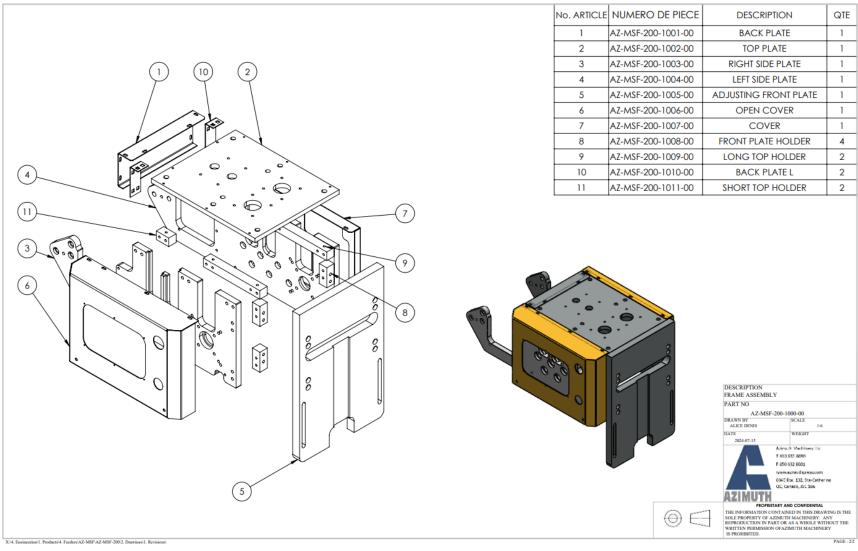
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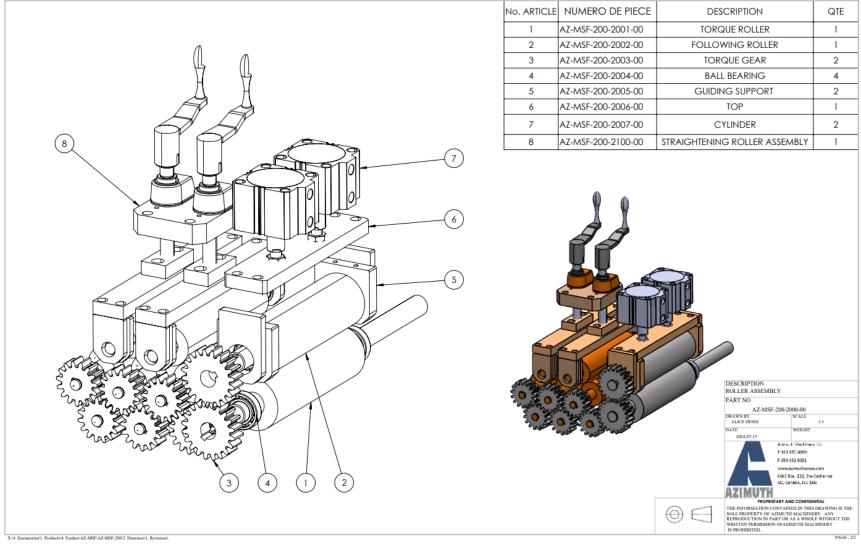
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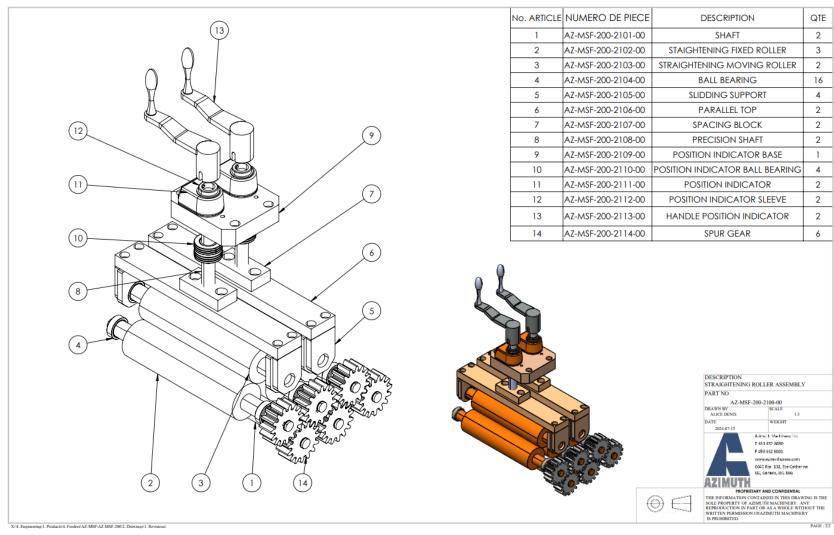
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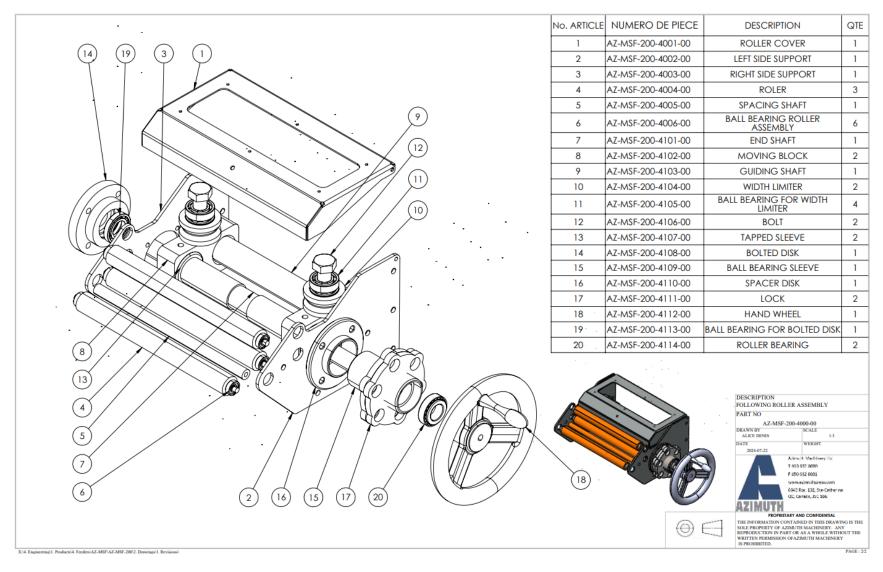
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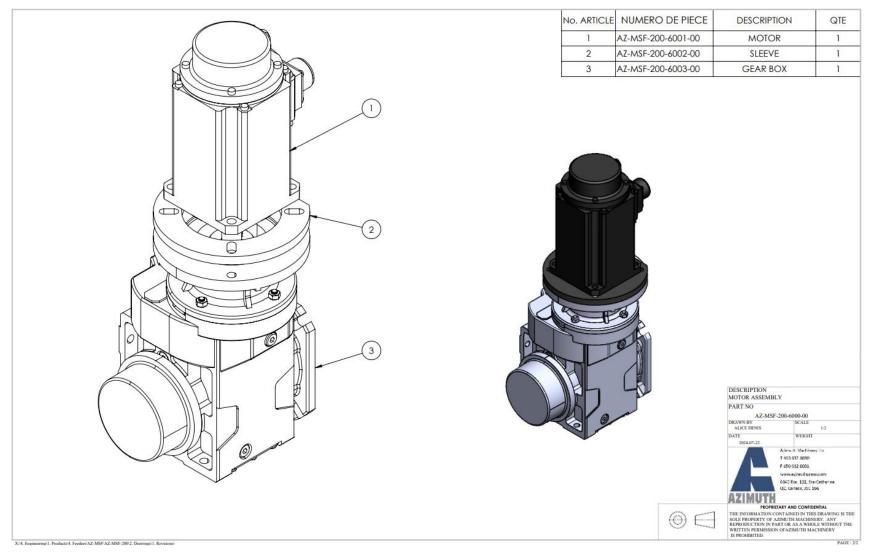


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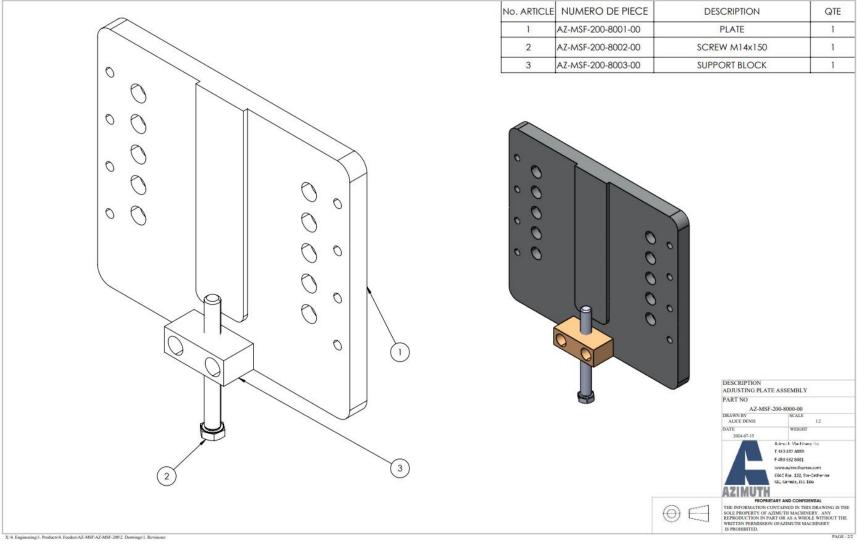








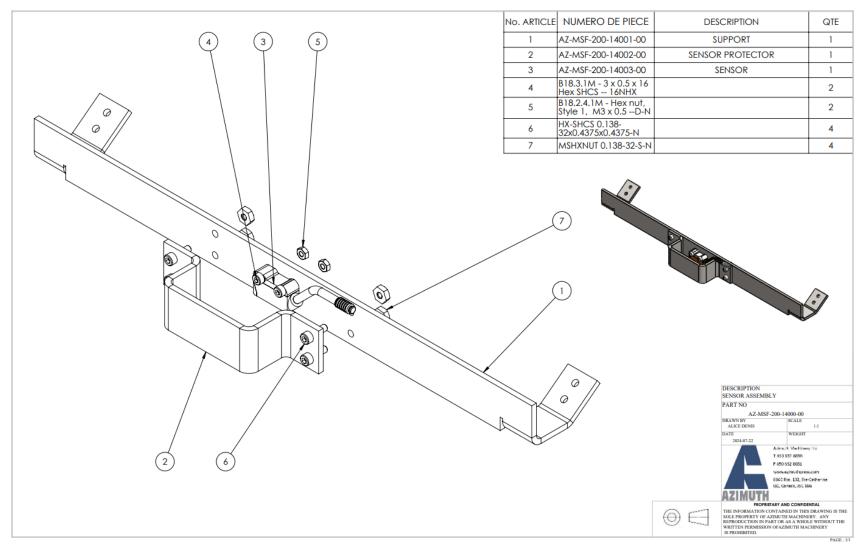
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